



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,597	06/24/2003	Young Ho Park	2336-181	1487

7590 03/27/2006

LOWE HAUPTMAN GOPSTEIN GILMAN & BERNER, LLP
Suite 310
1700 Diagonal Road
Alexandria, VA 22314

EXAMINER

LEWIS, MONICA

ART UNIT PAPER NUMBER

2822

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,597

Applicant(s)

PARK ET AL.

Examiner

Monica Lewis

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5 and 24-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5 and 24-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the request for continued examination filed January 23, 2006.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/23/06 has been entered.

Response to Arguments

3. Applicant's arguments with respect to claims 5 and 24-26 have been considered but are moot in view of the new ground(s) of rejection.

Information Disclosure Statement

4. The information disclosure statement filed 2/1/06 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chien et al. (U.S. Patent No. 6,492,661) in view of Keizo et al. (Japanese Patent No. 2001-339100) and Ishida (U.S. Publication No. 2004/0209542).

In regards to claim 5, Chien et al. ("Chien") discloses the following:

- a) a first conductive GaN clad layer (151) which is a crystalline layer with an n-type impurity (For Example: See Figure 9e);
- b) a first contact (159) formed on and in direct contact with an upper surface of the first conductive GaN clad layer (For Example: See Figure 9e);
- c) an active layer (153) formed on a lower surface of the first conductive GaN clad layer (For Example: See Figure 9e);
- d) a second conductive GaN clad layer (155) formed on a lower surface of the active layer wherein the second conductive GaN clad layer is a GaN crystalline layer doped with a p-type impurity (For Example: See Figure 9e);
- e) a conductive substrate (157) (For Example: See Figure 9e); and
- f) a second contact (158) formed on a lower surface of said substrate (For Example: See Figure 9e).

In regards to claim 5, Chien fails to disclose the following:

- a) a conductive adhesive layer.

However, Keizo et al. ("Keizo") discloses the use of a conductive adhesive layer (3) (For Example: See Figure 1). It would have been obvious to one having ordinary skill in the art at the

Art Unit: 2822

time the invention was made to modify the semiconductor of Chien to include the use of a conductive adhesive layer as disclosed in Keizo because it aids in providing good optical effectiveness (For Example: See Paragraph 9).

Additionally, since Chien and Keizo are both from the same field of endeavor, the purpose disclosed by Keizo would have been recognized in the pertinent art of Chien.

b) the conductive adhesive layer is made of a material selected from the group consisting of Au-Sn, Sn, In, Au-Ag and Pb-Sn.

However, Ishida discloses the use of a conductive adhesive layer made of Pb-Sn (For Example: See Paragraph 38). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Chien to include the use of a conductive adhesive layer made of Pb-Sn as disclosed in Chien because it aids in providing electrical connection (For Example: See Paragraph 40).

Additionally, since Chien and Ishida are both from the same field of endeavor, the purpose disclosed by Ishida would have been recognized in the pertinent art of Chien.

In regards to claim 24, Chien discloses the following:

a) a reflective layer (156) made of a conductive material (For Example: See Figure 9e).

In regards to claim 24, Chien fails to disclose the following:

a) a conductive adhesive layer.

However, Keizo discloses the use of a conductive adhesive layer (3) (For Example: See Figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor of Chien to include the use of a conductive

Art Unit: 2822

adhesive layer as disclosed in Keizo because it aids in providing good optical effectiveness (For Example: See Paragraph 9).

Additionally, since Chien and Keizo are both from the same field of endeavor, the purpose disclosed by Keizo would have been recognized in the pertinent art of Chien.

In regards to claim 25, Chien discloses the following:

a) the reflective layer is made of a material selected from the group consisting of Au, Ni, Ag, Al and alloys thereof (For Example: See Column 7 Lines 65-67).


In regards to claim 26, Chien discloses the following:

a) the conductive substrate is made of a material selected from the group consisting of silicon, germanium and GaAs (For Example: See Column 8 Lines 3-8).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 571-272-1838. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722 for regular and after final communications.

ML
March 18, 2006

A handwritten signature in black ink, appearing to be 'ML', is located in the bottom right corner of the page.